



Chemical and Biological Defense Program (CBDP): Capabilities for Counteracting the Threat

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Outline



- Recent Highlights
- Program Organization
- Program Guidance and Direction
- Summary

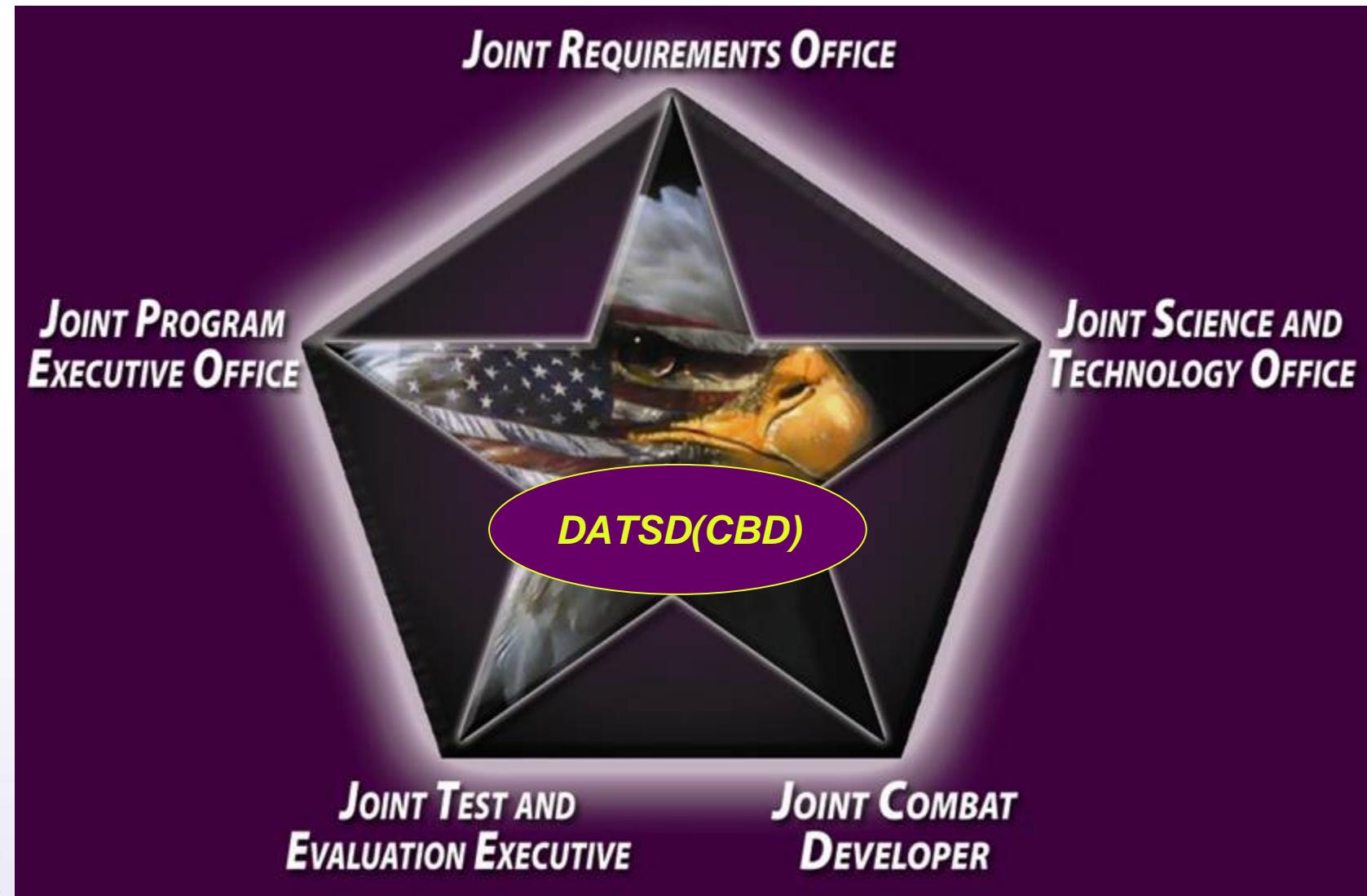


CBDP: Great News Story

- **FY06 Budget submission**
 - First input under new management structure
 - First alignment of life-cycle cost and testing (from science & technology through acquisition)
 - Major T&E Investment
 - Moving more into experimentation & rigorous analysis
- **Significant Interagency Collaboration**
- **One of Few Growth Areas in DoD Budget**
 - \$2.1 Billion Increase over FYDP in President's Budget
 - Aligns with President's Global War on Terror
 - Increased Emphasis in Future Technologies
 - **High Investment in S&T in FY06**
 - Infrastructure Rebuild
 - Non-Traditional Agents
 - Genetically Engineered Threats
 - New Sensor Approaches
 - Systems Biology Approach to Medical Countermeasures



Chemical and Biological Defense Program (CBDP) Program Organization





CBDP Major Players



Dr. Dale Klein
ATSD(NCB)



Dr. Klaus Schafer
DATSD(CBD)



Dr. Barry Fridling
JRO-CBRND
(Acting)



BG Steve Reeves
JPEO-CBD



Dr. Charles Galloway
Director, JSTO



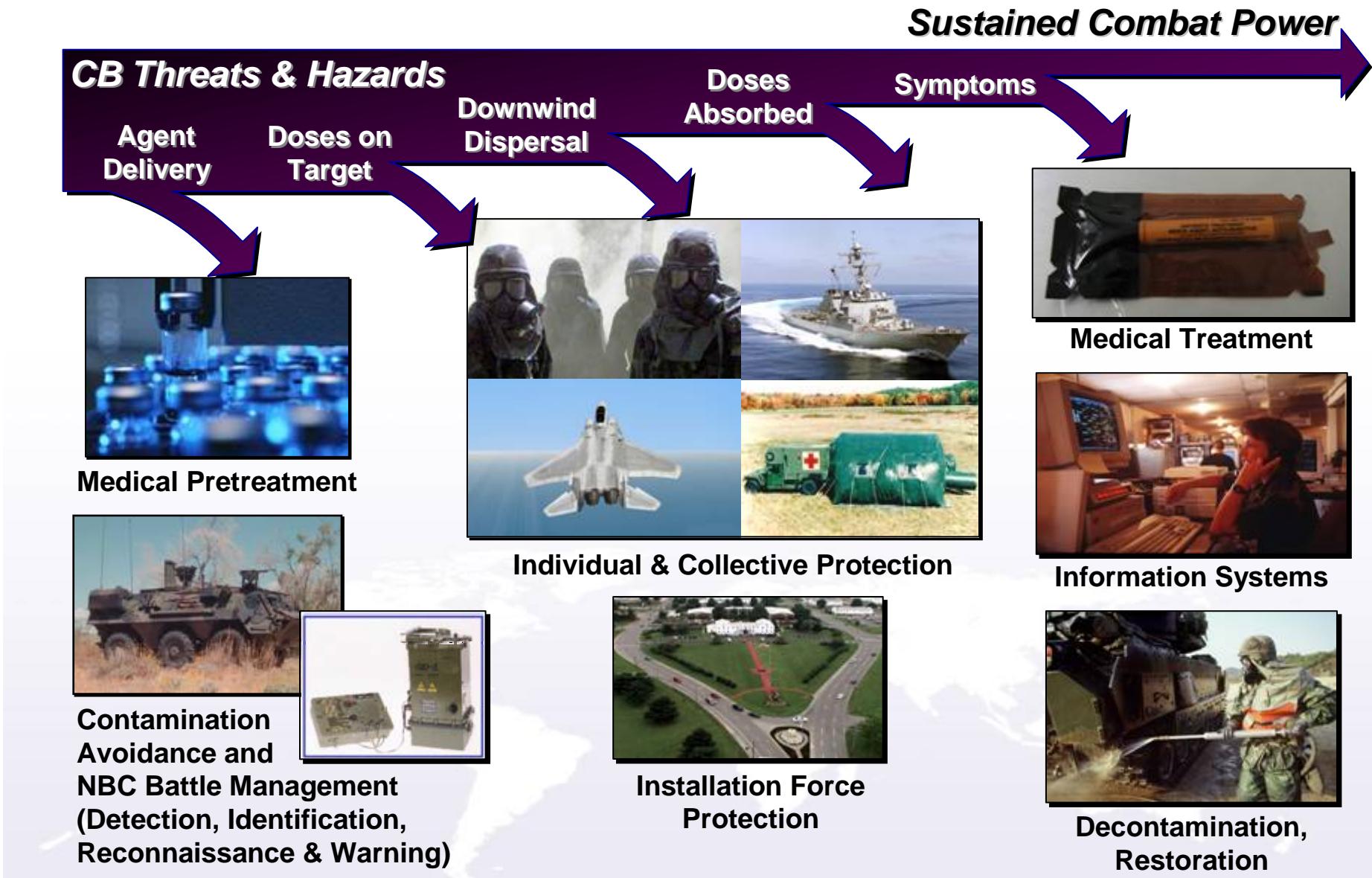
Mr. Walter Hollis
Joint T&E Executive Agent



BG Stan Lillie
Joint Combat Developer



An Integrated Systems Approach to Counter the Threat





CBRN Defense Program Strategic Environment



- Defense of the Homeland
- Global War on Terror
- DOD Role in Bioshield
- Proliferation of Weapons of Mass Destruction
- Challenge of Non-Traditional CBRN Agents
- Biosurety



“The *greatest threat* before humanity today is the possibility of *secret and sudden attack* with *chemical, or biological, or nuclear weapons*”

*President George W. Bush
Remarks at the National Defense University, 11 February 2004*



Chemical Biological Defense Program Paradigm Shift



Prior to the transformation, the **major focus** to provide improved capabilities for the warfighter to survive, fight, and win on any battlefield contaminated with chemical and biological weapons.

The current paradigm shift directs both a **broadening and deepening** of the CBDP.

- CBRN consequence management (about 1997)
- Force protection (in 1999)
- Homeland Defense (in 2002)
- Visibility of “radiological and nuclear” aspects of the program (2003)
- Inclusion of the US Coast Guard
- Transition from *Threat Based* to *Capabilities Based* Process

➤ This broadening requires a carefully developed program strategy to **ensure that warfighter capabilities are maintained and advanced concurrently with these added missions.**



Chemical and Biological Defense: *Strategic Framework*





DoD Mission



**Provide integrated chemical and
biological defense capabilities
to effectively execute the
National Military Strategy.**





Strategic Imperatives

- Eliminate technological surprise.
- Make the threat irrelevant.
- Detect the threat.
- Protect against the threat.
- Eliminate the threat.





Enabling the Vision

- Doctrine
- Organization
- Training
- Materiel
- Leader development
- Personnel
- Facilities

Oversight – Coordination – Integration



Transforming



- New Team Focused on:
 - Defining Equities Across DoD
 - Streamlining Processes
 - Synchronizing Effort
 - Improving Efficiency
 - Optimizing Capability
 - Promoting Interoperability

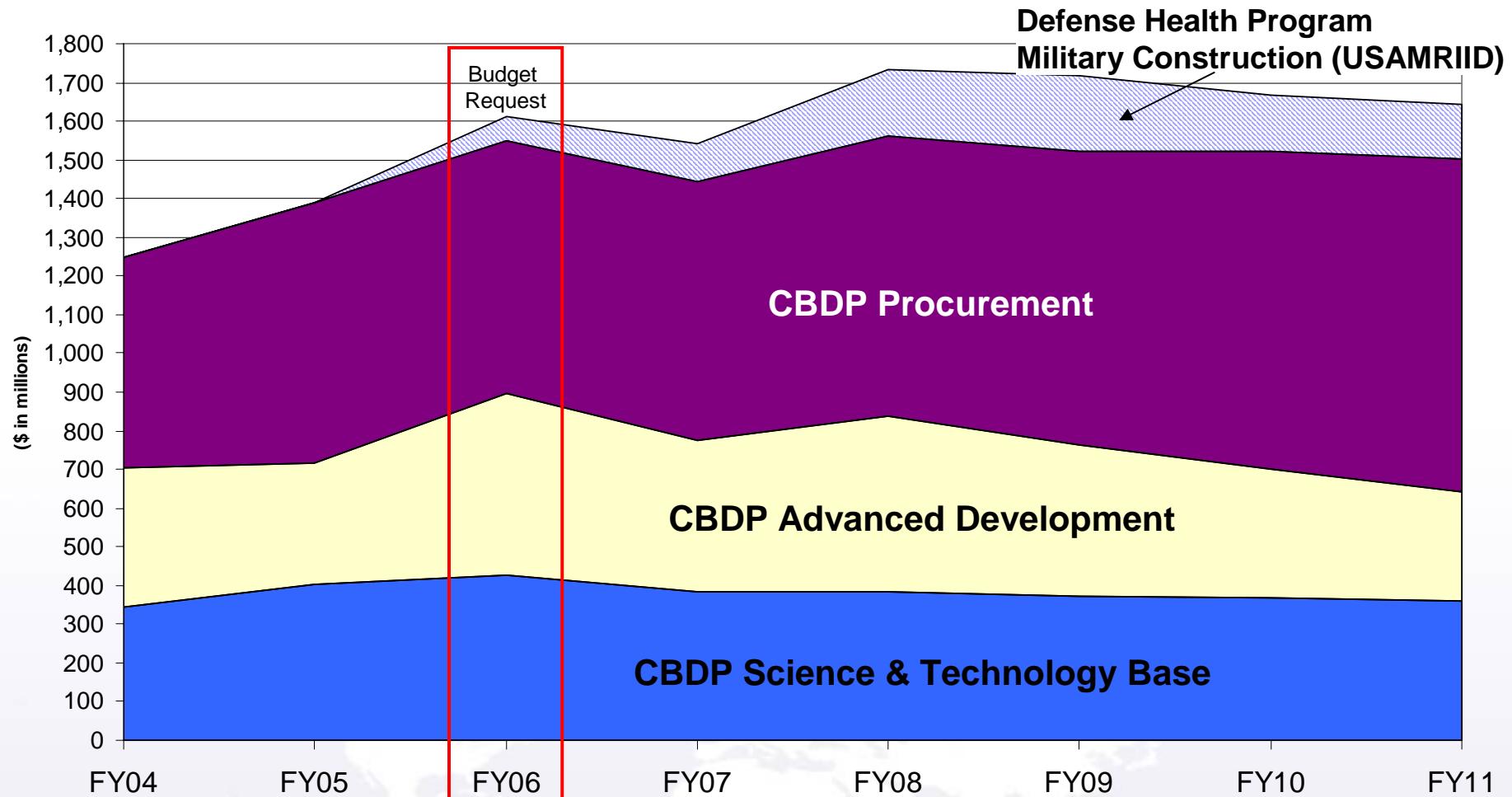


BOTTOM LINE:
EFFECTIVE SOLUTIONS
IN THE HANDS OF THE USER



FY06 President's Budget

(DoD CB Defense Program + Defense Health Program for Construction of USAMRIID Improvements)



FY06 Highlights

- Near-Term Shift in Emphasis to Address Future Challenges (NTAs, Emerging Threats) and Improve the T&E Infrastructure
- Long term trend to Provide Advanced Capabilities to the Warfighter



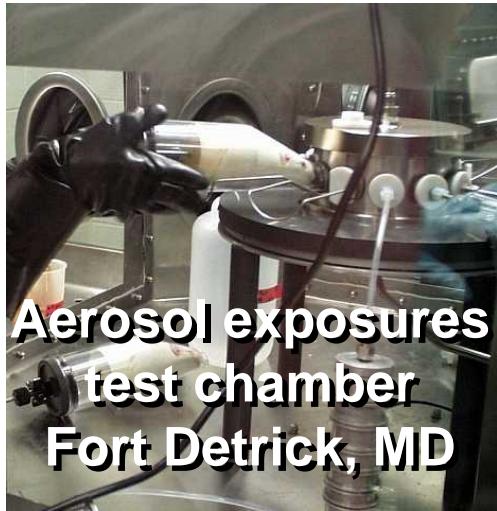
Enhanced Planning Process (EPP) Results



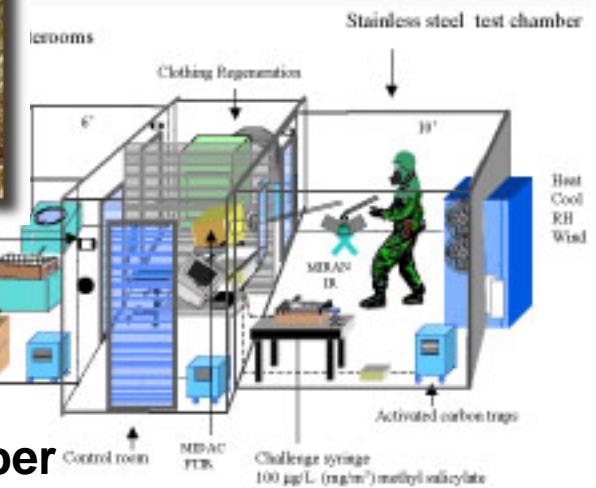
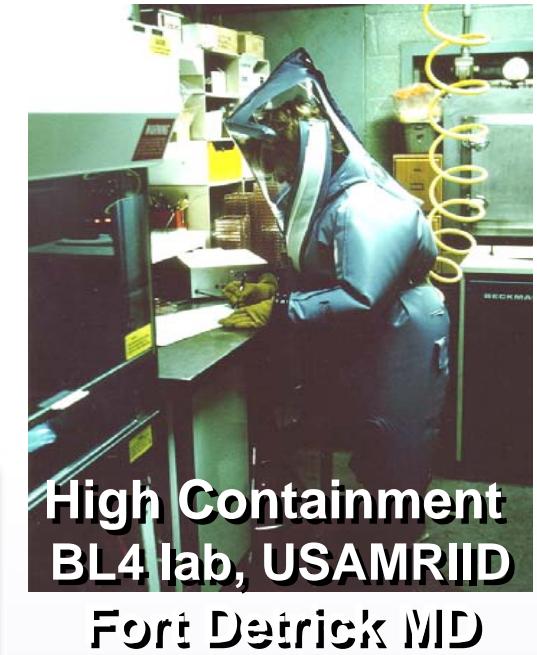
T&E Infrastructure Improvements	RDT&E Improvements
<ul style="list-style-type: none">• CB T&E Facilities• NTA Test Chamber• USAMRIID (DHP)	<p>Additional Emphasis:</p> <ul style="list-style-type: none">• S&T for NTA detection• Bio point and standoff detection• Medical Prophylaxis• Battle Analysis• Decontamination• Bio Defense Initiatives• Chem point detection



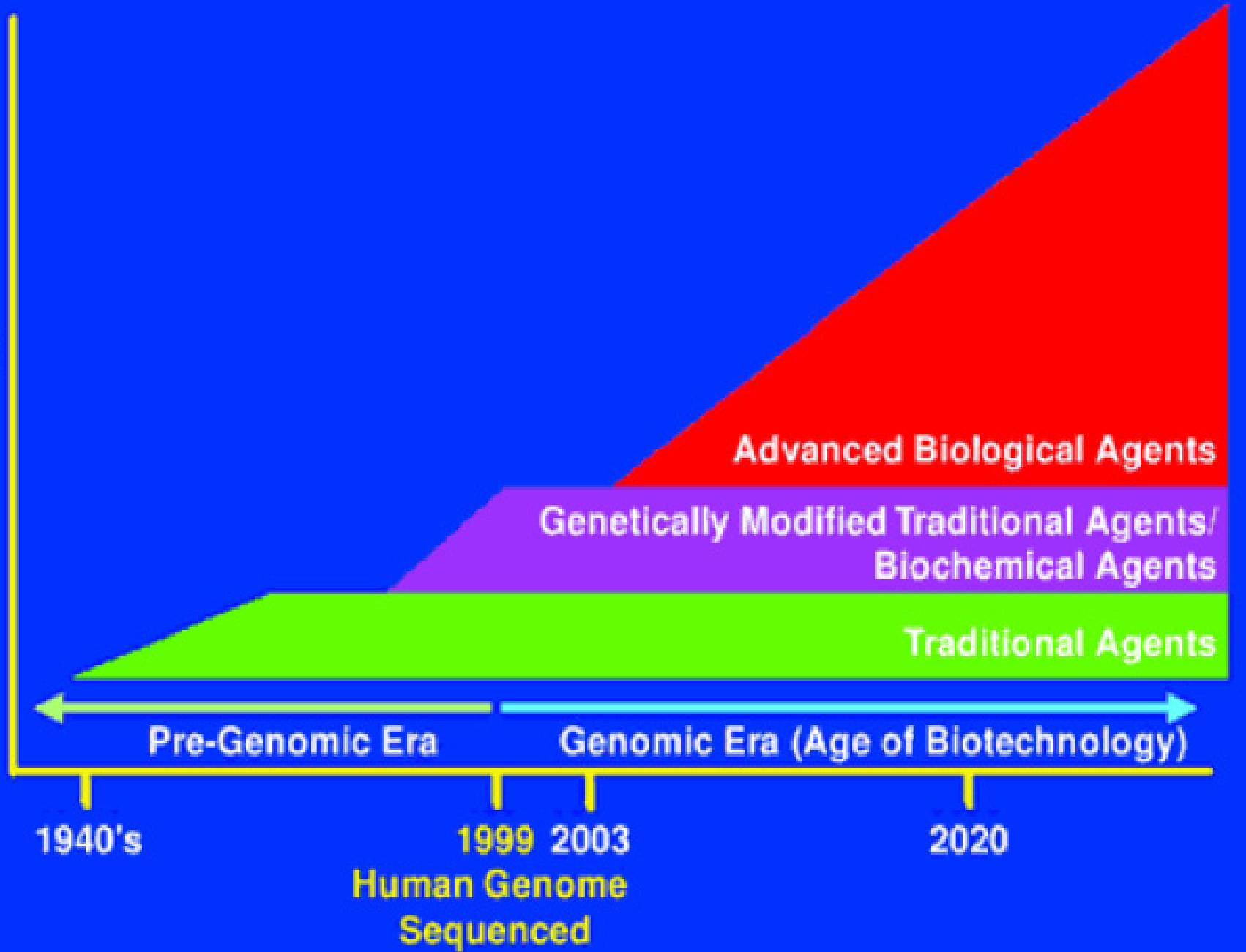
T&E Infrastructure Investment



Man In Simulant
Test (MIST) Chamber



Threat





The Problem

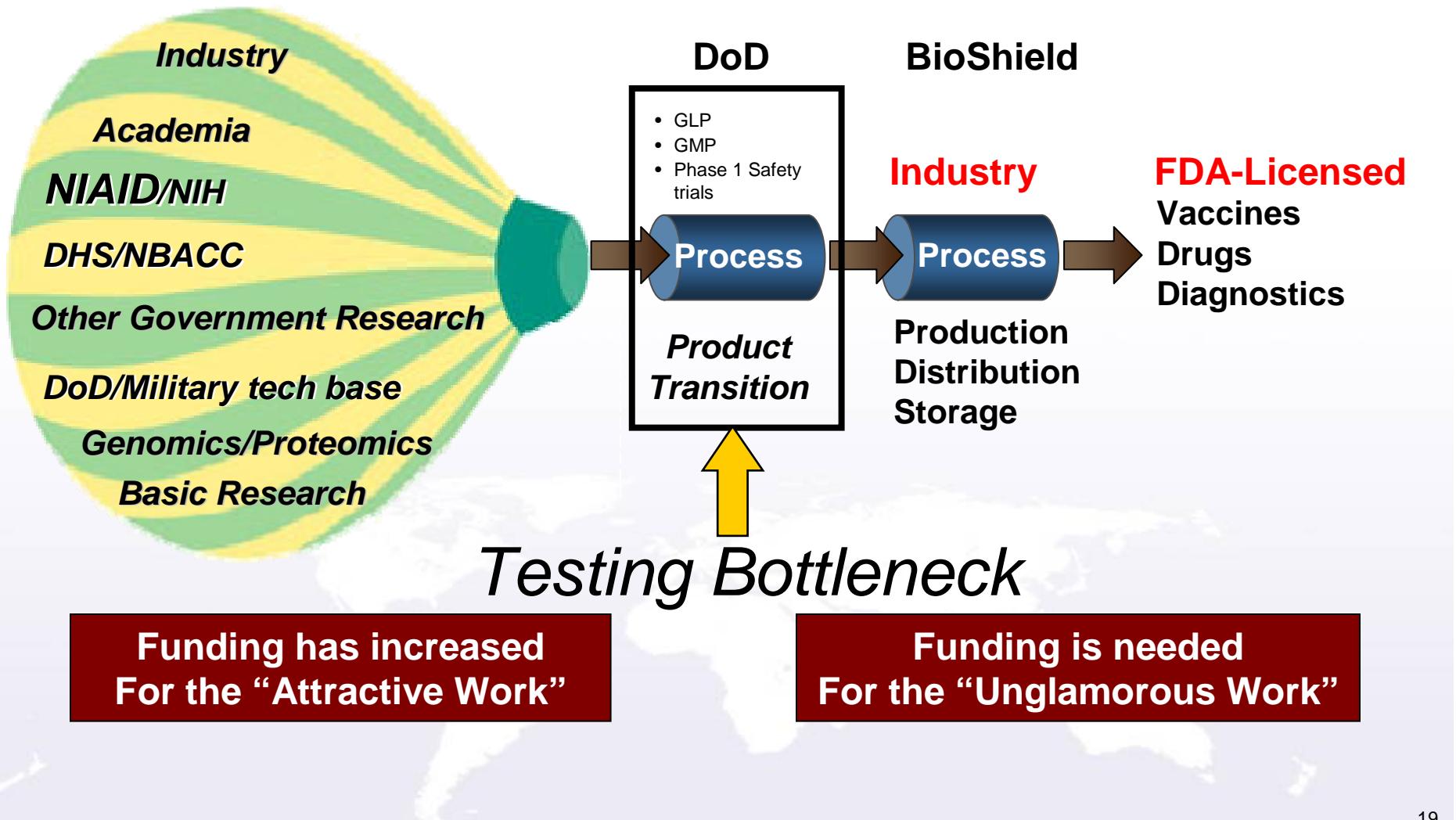
Slow drug development process leads to economic and social catastrophe jeopardizing national security





R&D - Test and Evaluation

Vaccine/Drug Discovery Vaccine/Drug Development

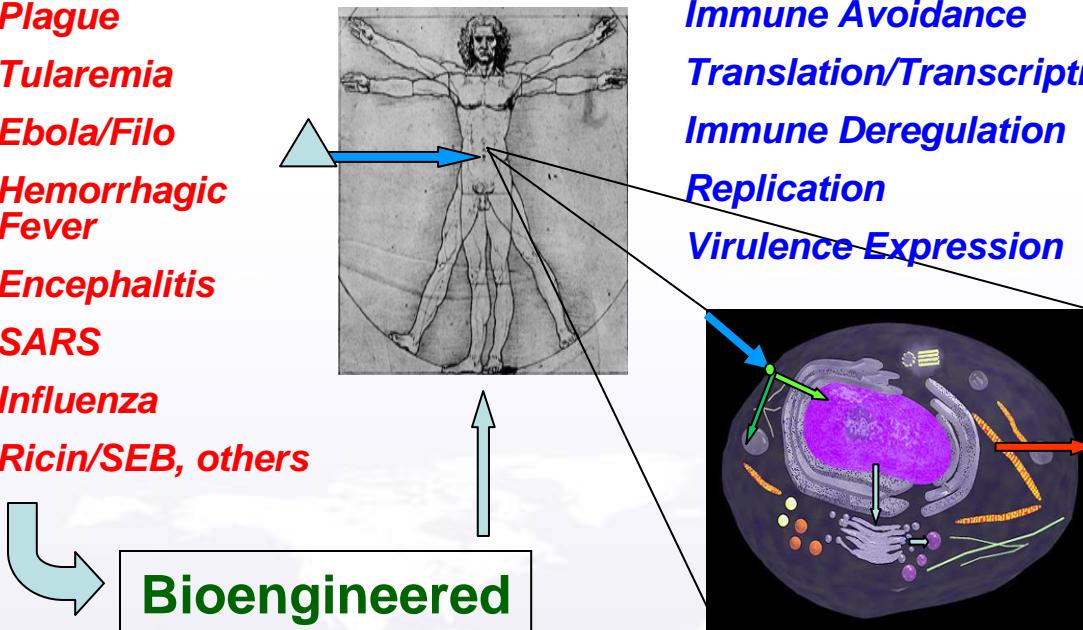




Future Emphasis: Systems Biology

Today's Threats

Anthrax
Smallpox
Botulinum
Plague
Tularemia
Ebola/Filo
Hemorrhagic Fever
Encephalitis
SARS
Influenza
Ricin/SEB, others



Modes of Action

Receptor Binding
Signal Transduction
Decoys
Immune Avoidance
Translation/Transcription
Immune Deregulation
Replication
Virulence Expression

Parallel Systems Approach

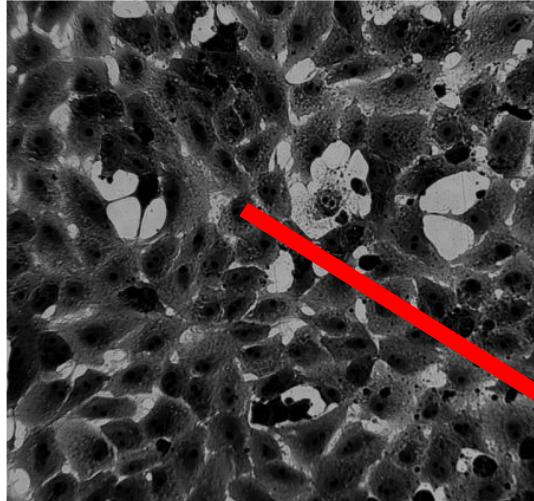
Solutions

Target Agent Commonalities

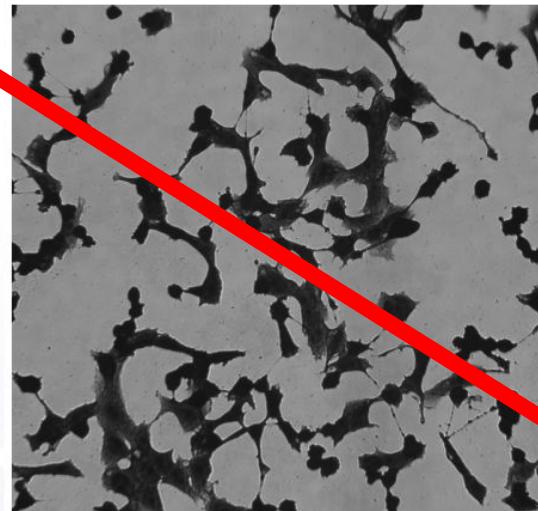
- Block Key Receptors
- Inhibition by Small Molecules
- Modulate Immunity
- Change Gene Expression
- Block Protein Actions
- Modulate Physiologic Impacts



Viral Disease

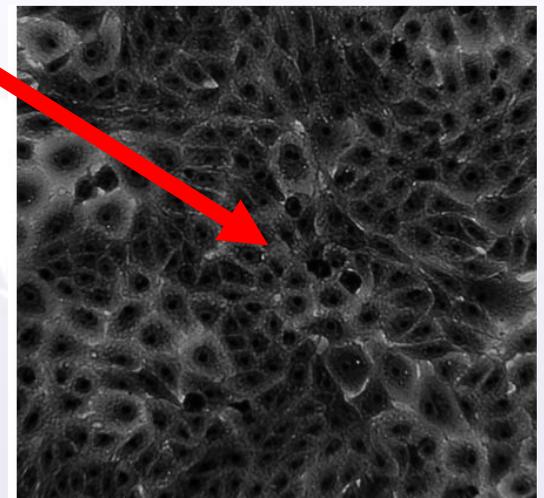


**Healthy Cells
(Untreated)**



**Cells Infected with SARS
(Untreated)**

**Cells Infected with SARS
(Treated with 20 μ M of
TRS2 PMO)**





Broad Spectrum Therapies for Novel Biodefense Threats



- **\$100M funding in FY06**
 - Budget Activities BA1-BA5
 - 76% in Science and Technology Base
- **Transformational Approaches will be applied – leverage genomics, proteomics and systems biology data explosion**
- **Technical and program advisory leadership from team of nationally recognized experts**
 - BW defense, microbiology, drug development
 - Will draw heavily from commercial and academic performers
- **Basic Research/Science (\$28M)**
 - Directed at common pathways (modes of action) in pathogen host response
 - Find novel intervention points



Broad Spectrum Therapies for Novel Biodefense Threats (Cont'd)



- **Applied Research/Science (\$18M)**
 - Directed at expanding technologies
 - Speed the cycle from discovery to license application
- **Advanced Science/Tech Development (\$30M)**
 - Aimed at quick wins based on new compounds and technology approaches demonstrating current success
 - Strategy to deliver products with IND approval (Phase 1 trials) for BioShield acceptability and further investment
- **Advanced Component Development and System Demonstration (\$24M)**
- **Ultimate goal is defeat of genetically engineered biological threat**



Emerging Threats: Path Forward



- **Anticipate the threat**
- **Deliver New capabilities Short Term and Long Term**
- **Exploit Existing Med CM as Well as Survey Existing Therapeutics**
- **Major Investments Needed in Host-pathogen Infection Process to Identify Common Targets for Broad-spectrum Drugs**
- **Push Developments to Diagnostics, Therapeutics and Pretreatment Portfolios**
- **Needs to Harness all of the Major Bioinformatics and Molecular Biology Breakthroughs**



Conclusion

- **Finish What we Started on Classic Threats**
 - Legacy Products Need Investment to Take These Threats Away from the Enemy
- **The Good Old Days are over**
 - Next Generation Threats Need New Thinking, Bold Approaches and Harnessing Information Revolution in Biology
- **Best Approach for Long-term Threats is Looking for Common Virulence Pathways**
 - Defeat Next Generation Threats by Attacking Problem at the Common Host Response Pathways



Questions?

<http://www.acq.osd.mil/cp>